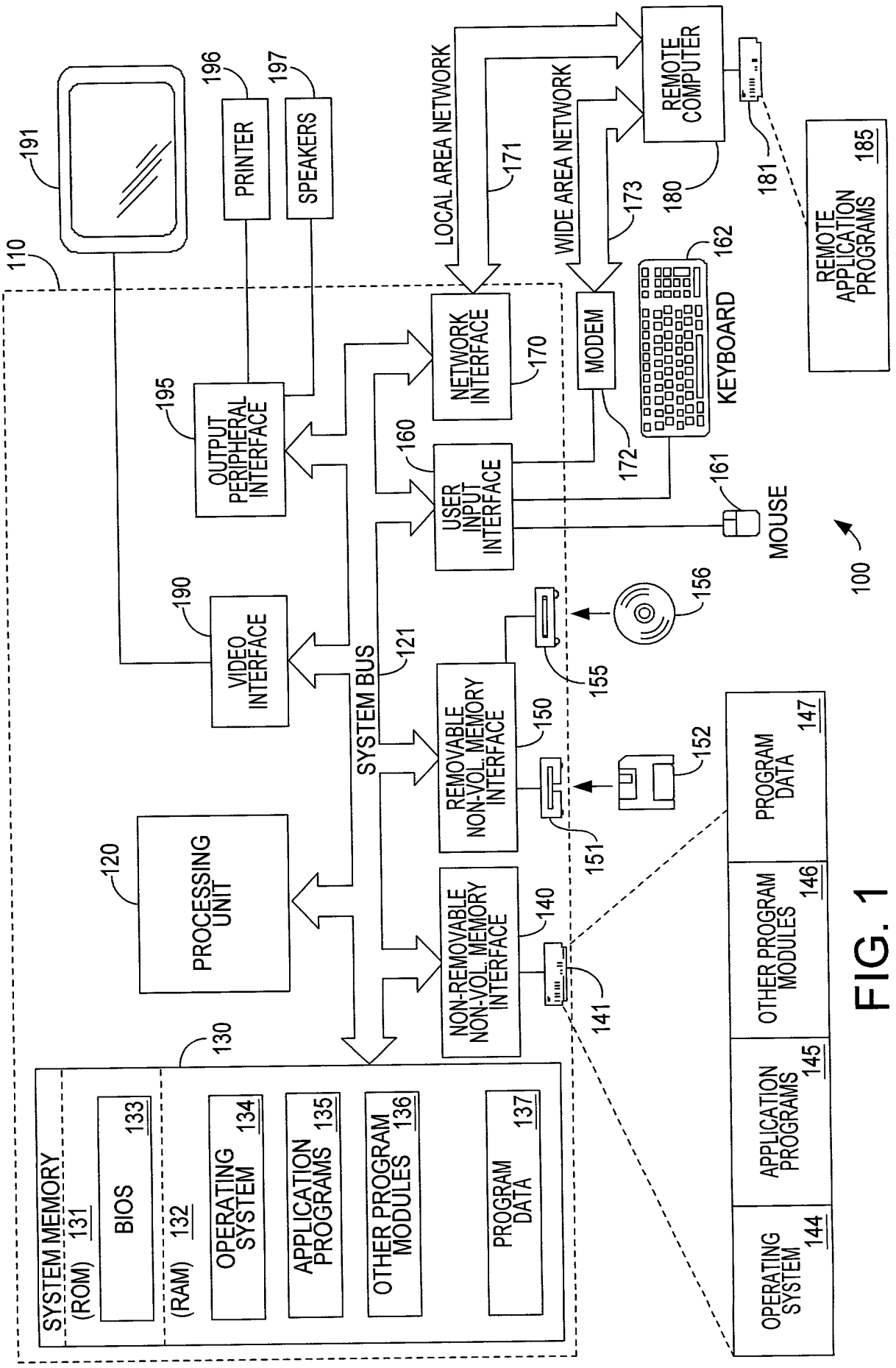
100
110
120
121
130
131
132
133
134
135
136
137
140
141
144
145
146
147
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151
152
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181
185
190
191
195
196
197
SYSTEM MEMORY
(ROM)
BIOS
(RAM)
OPERATING SYSTEM
APPLICATION PROGRAMS
OTHER PROGRAM MODULES
PROGRAM DATA
PROCESSING UNIT
NON-REMOVABLE NON-VOL. MEMORY INTERFACE
REMOVABLE NON-VOL. MEMORY INTERFACE
SYSTEM BUS
VIDEO INTERFACE
OUTPUT PERIPHERAL INTERFACE
USER INPUT INTERFACE
NETWORK INTERFACE
MODEM
LOCAL AREA NETWORK
WIDE AREA NETWORK
REMOTE COMPUTER
PRINTER
SPEAKERS
KEYBOARD
MOUSE
REMOTE APPLICATION PROGRAMS
OPERATING SYSTEM
APPLICATION PROGRAMS
OTHER PROGRAM MODULES
PROGRAM DATA

FIG. 1

FIG. 2

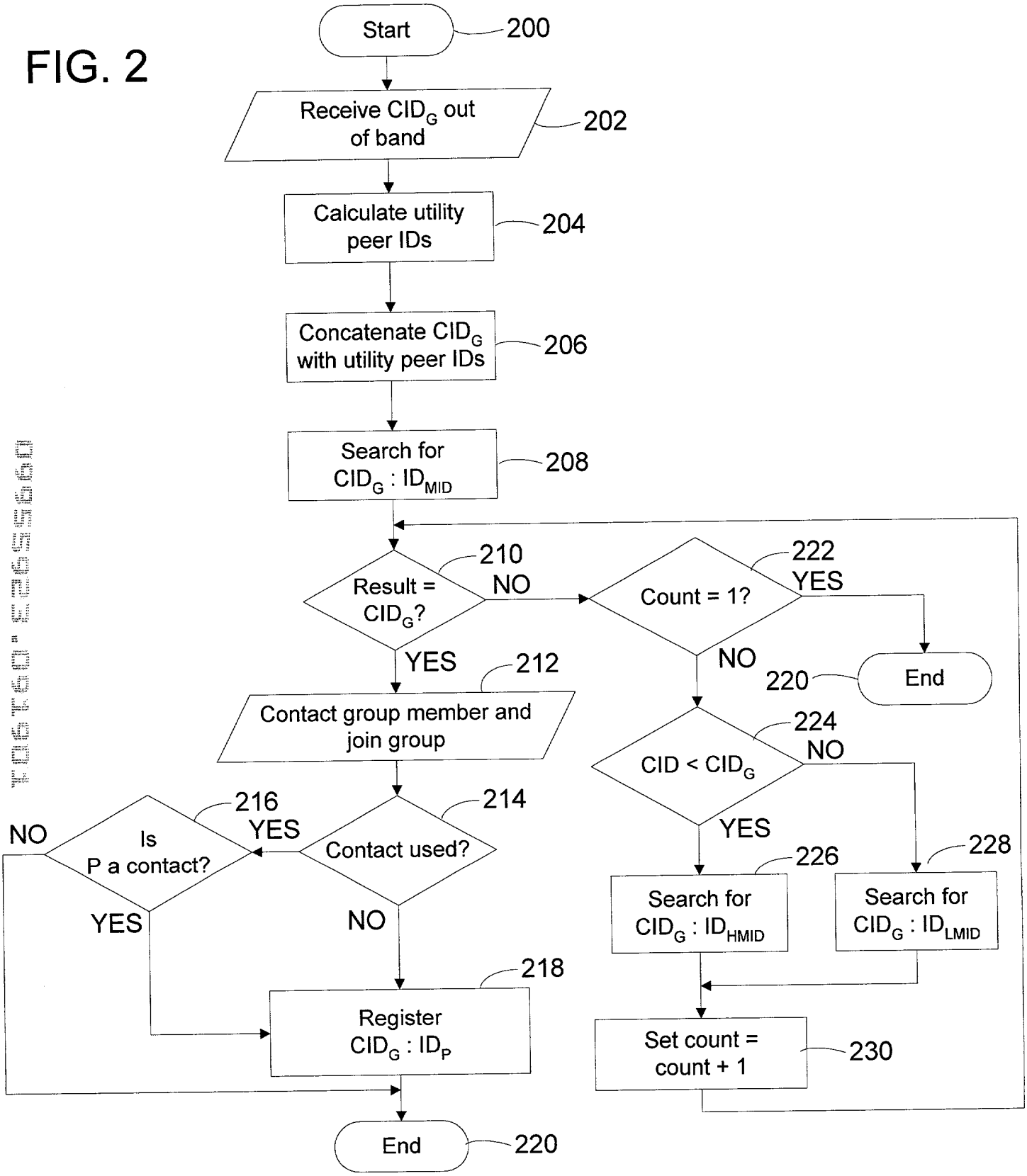
Start
200
Receive CID_G out of band
202
Calculate utility peer IDs
204
Concatenate CID_G with utility peer IDs
206
Search for $CID_G : ID_{MID}$
208
Result = CID_G?
210
NO
YES
Count = 1?
222
YES
NO
End
220
Contact group member and join group
212
CID < CID_G
224
NO
YES
Is P a contact?
216
YES
NO
Contact used?
214
Search for $CID_G : ID_{HMID}$
226
Search for $CID_G : ID_{LMID}$
228
Register $CID_G : ID_P$
218
Set count = count + 1
230
End
220

FIG. 3

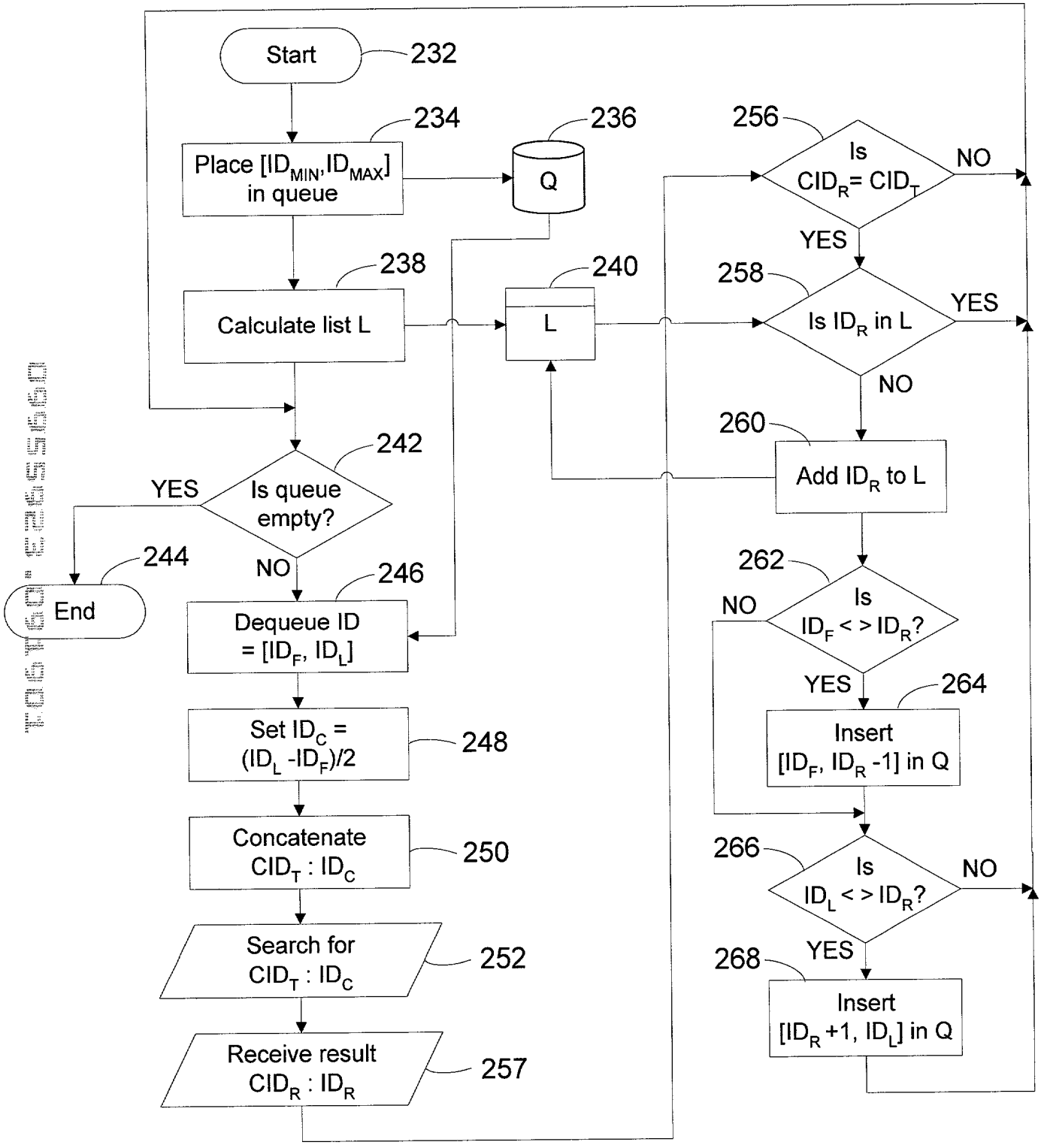
Start
232
Place [ID_MIN,ID_MAX] in queue
234
Q
236
Calculate list L
238
L
240
Is queue empty?
242
YES
NO
End
244
Dequeue ID = [ID_F, ID_L]
246
Set ID_C = (ID_L -ID_F)/2
248
Concatenate CID_T : ID_C
250
Search for CID_T : ID_C
252
Receive result CID_R : ID_R
257
Is CID_R= CID_T
256
NO
YES
Is ID_R in L
258
YES
NO
Add ID_R to L
260
Is ID_F < > ID_R?
262
NO
YES
Insert [ID_F, ID_R -1] in Q
264
Is ID_L < > ID_R?
266
NO
YES
Insert [ID_R +1, ID_L] in Q
268

FIG. 4

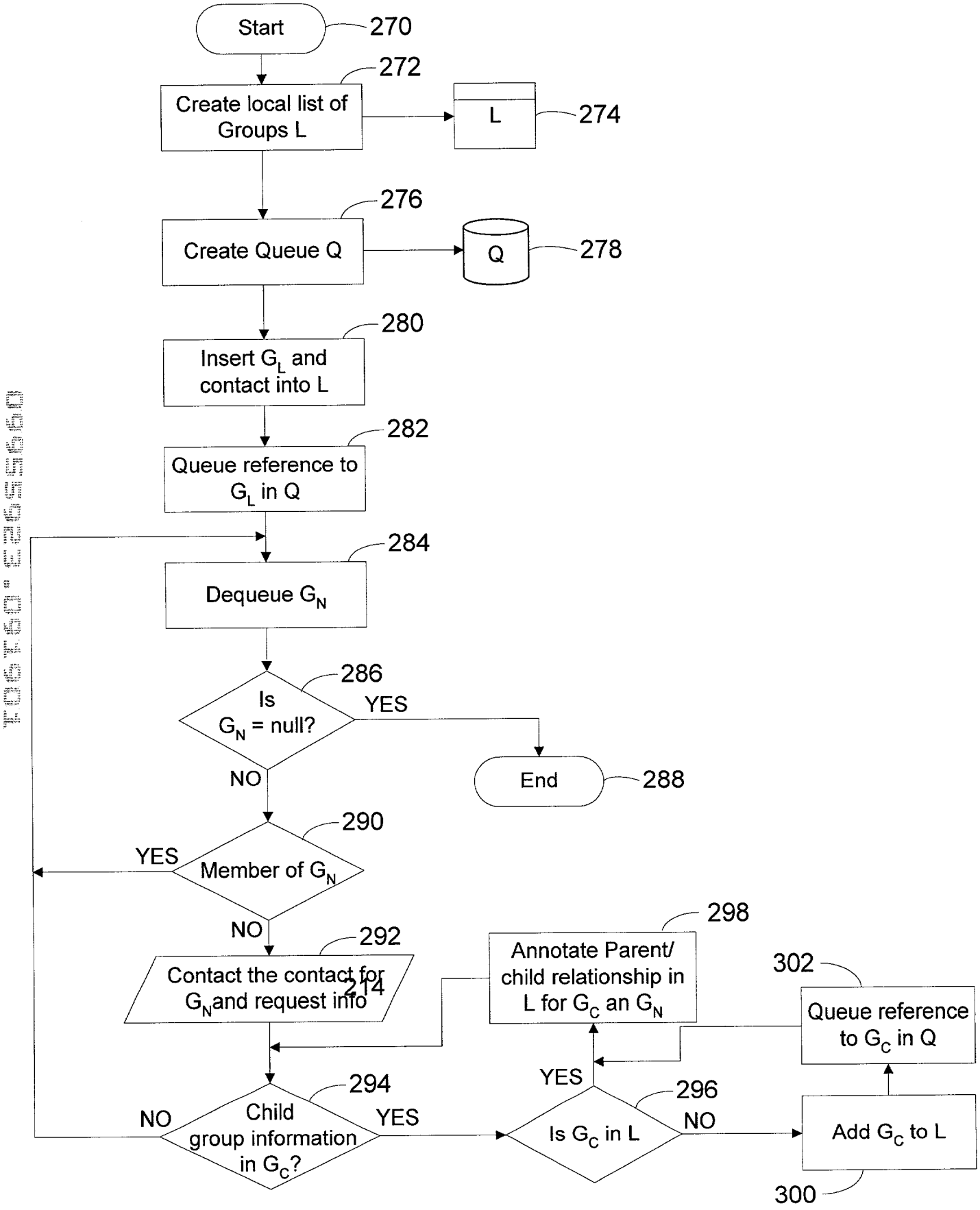
Start
270
Create local list of Groups L
272
L
274
Create Queue Q
276
Q
278
Insert G_L and contact into L
280
Queue reference to G_L in Q
282
Dequeue G_N
284
Is G_N = null?
286
YES
End
288
NO
Member of G_N
290
YES
NO
Contact the contact for G_N and request info
292
214
Child group information in G_C?
294
NO
YES
Is G_C in L
296
YES
NO
Annotate Parent/ child relationship in L for G_C an G_N
298
Queue reference to G_C in Q
302
Add G_C to L
300

FIG. 5

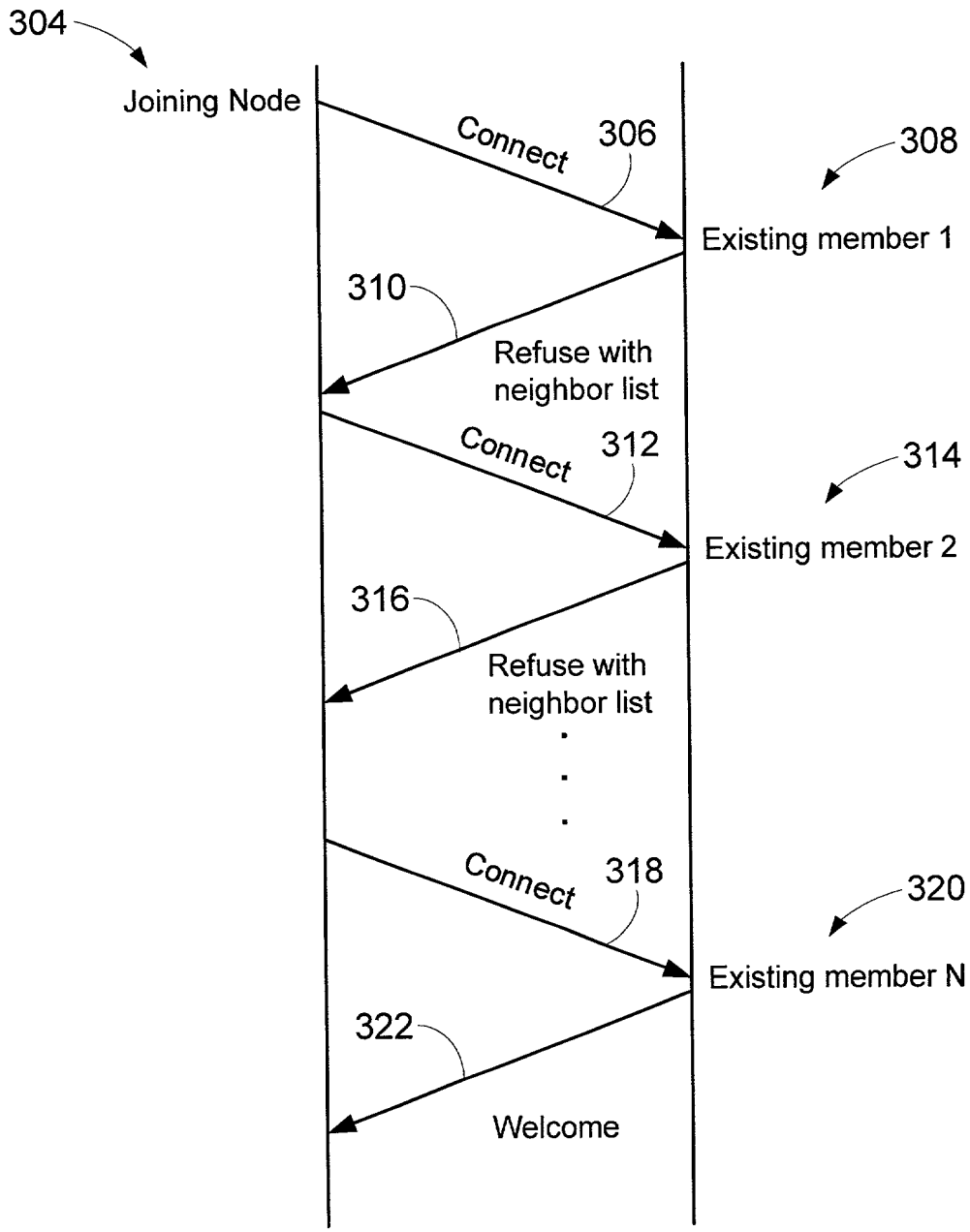
304
Joining Node
Connect
306
308
Existing member 1
310
Refuse with
neighbor list
Connect
312
314
Existing member 2
316
Refuse with
neighbor list
Connect
318
320
Existing member N
322
Welcome

FIG. 6

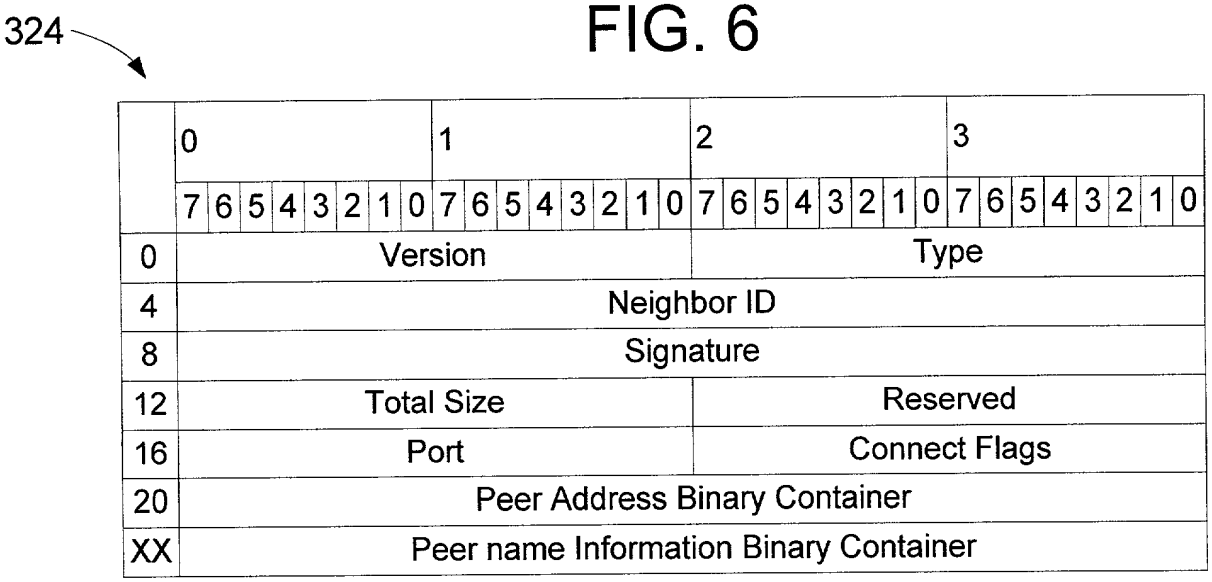

FIG. 7

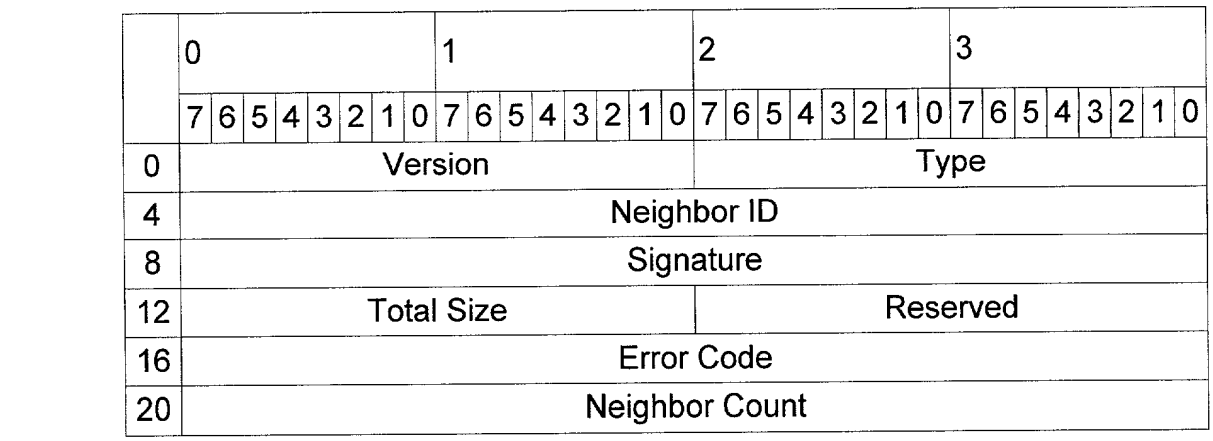

FIG. 8

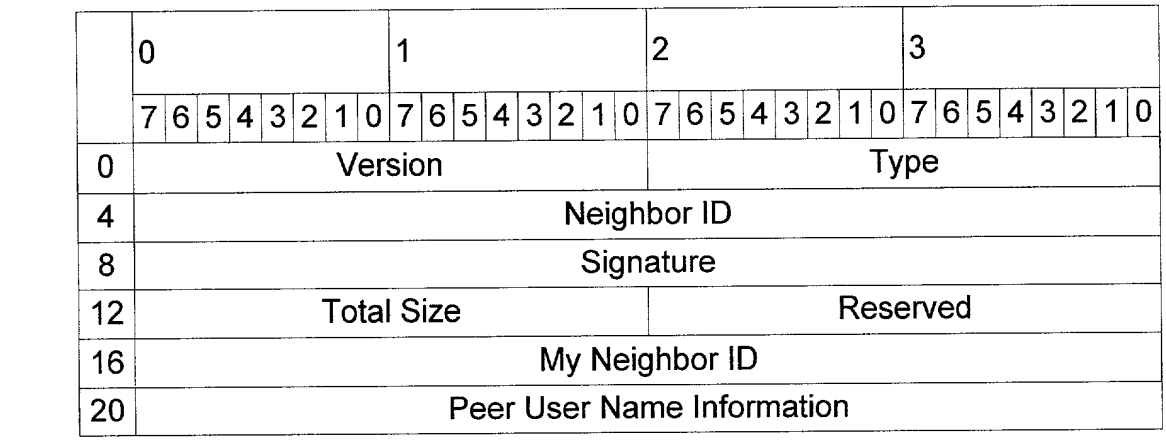

FIG. 9

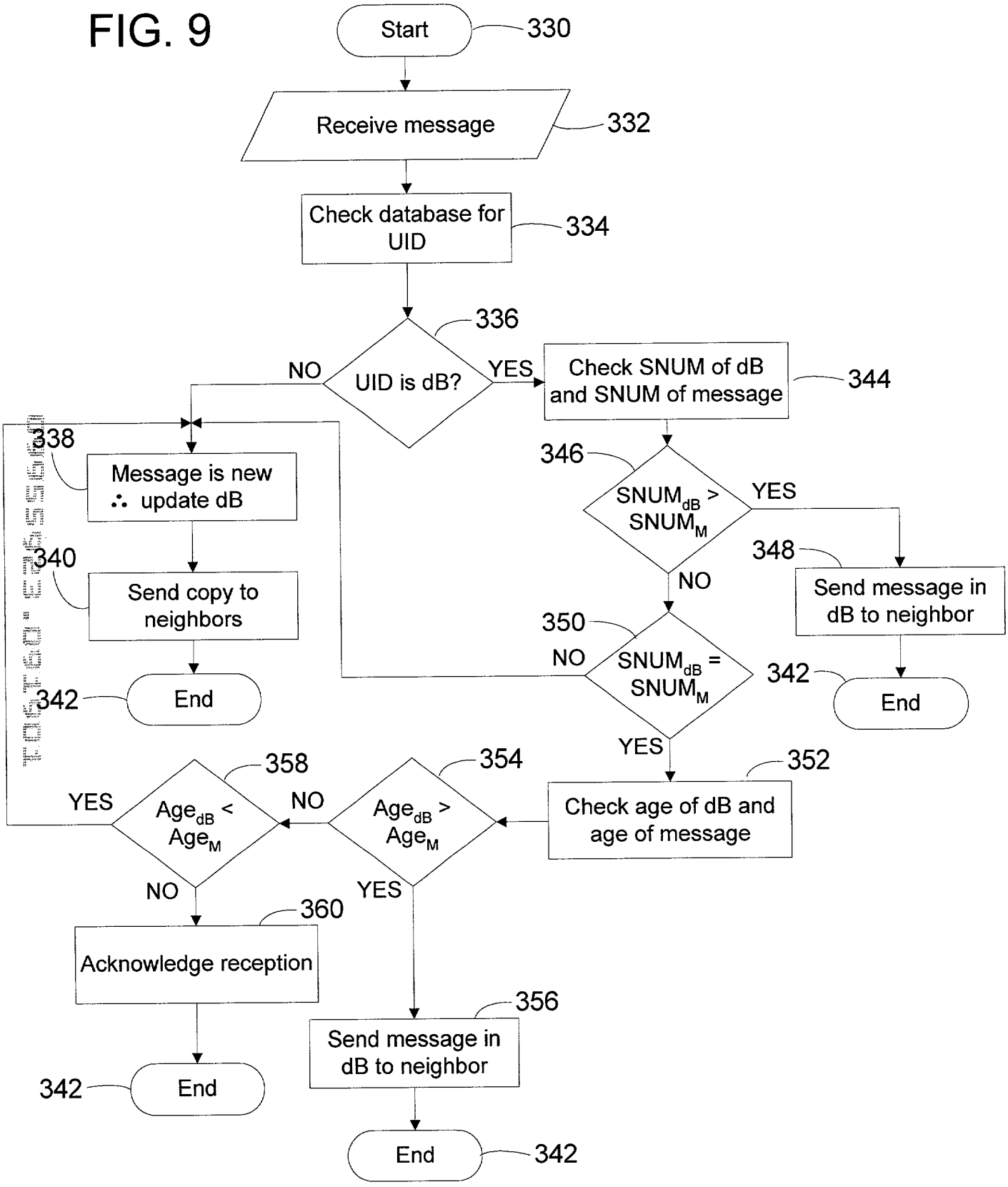
Start
330
Receive message
332
Check database for UID
334
336
UID is dB?
NO
YES
Check SNUM of dB and SNUM of message
344
338
Message is new ∴ update dB
340
Send copy to neighbors
342
End
346
SNUM_dB > SNUM_M
YES
348
Send message in dB to neighbor
342
End
NO
350
SNUM_dB = SNUM_M
NO
YES
352
Check age of dB and age of message
354
Age_dB > Age_M
YES
NO
358
Age_dB < Age_M
YES
NO
360
Acknowledge reception
342
End
356
Send message in dB to neighbor
End
342

FIG. 10

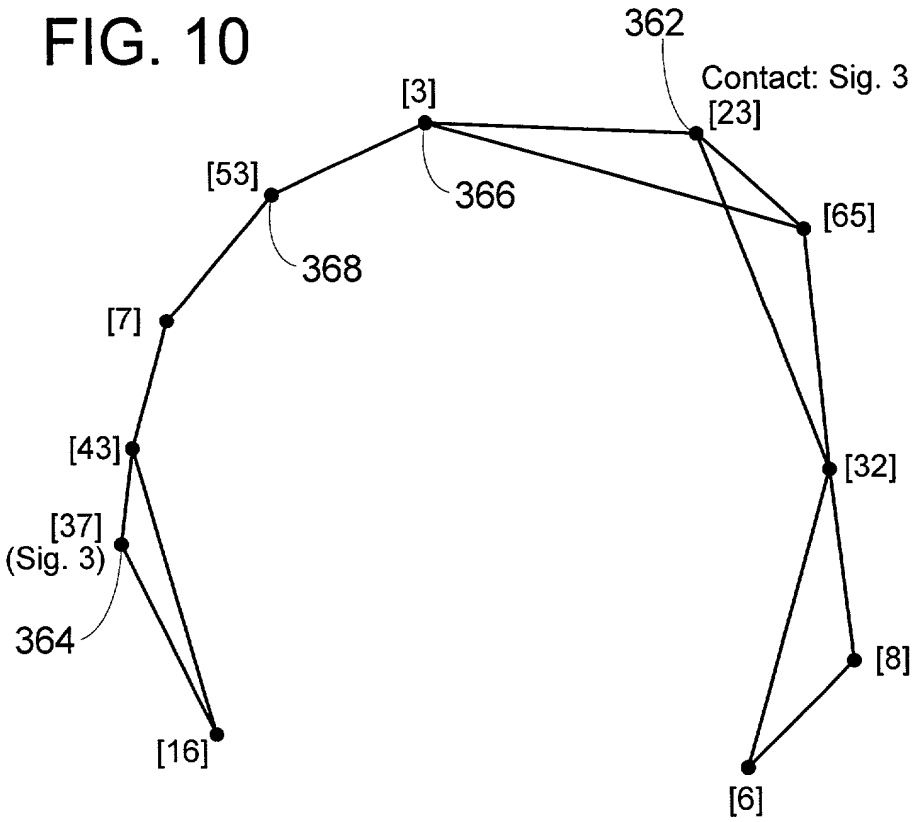
362
Contact: Sig. 3
[23]
[3]
366
[53]
368
[65]
[7]
[43]
[32]
[37]
(Sig. 3)
364
[8]
[16]
[6]

FIG. 11

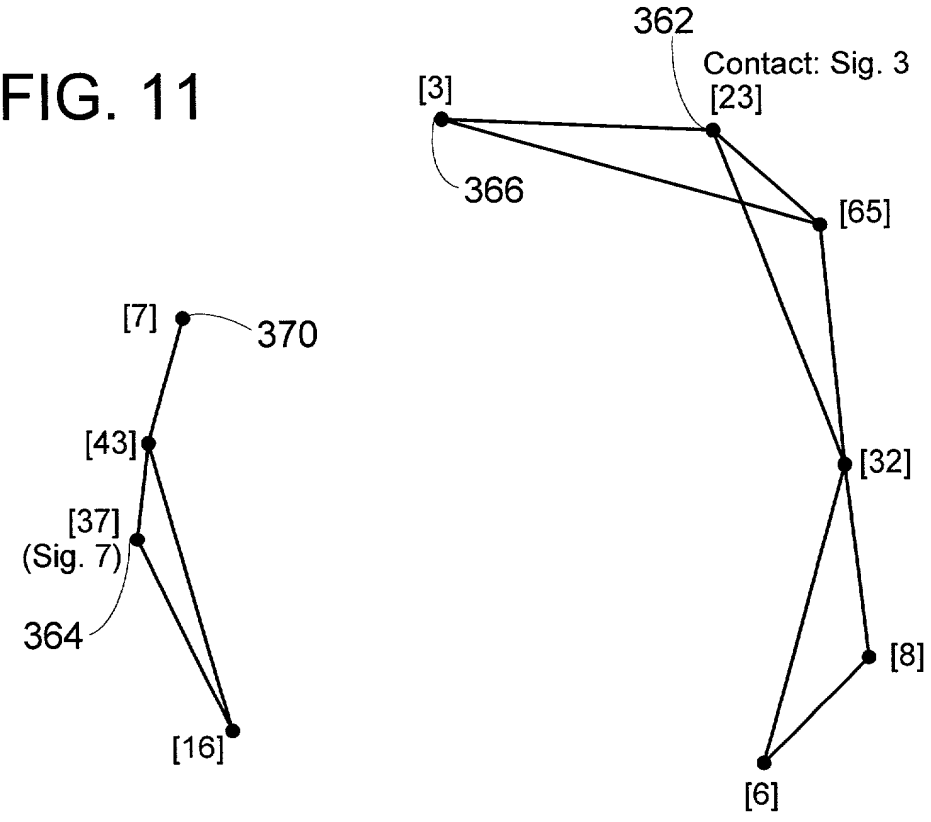
362
Contact: Sig. 3
[23]
[3]
366
[65]
[7]
370
[43]
[32]
[37]
(Sig. 7)
364
[8]
[16]
[6]

FIG. 12

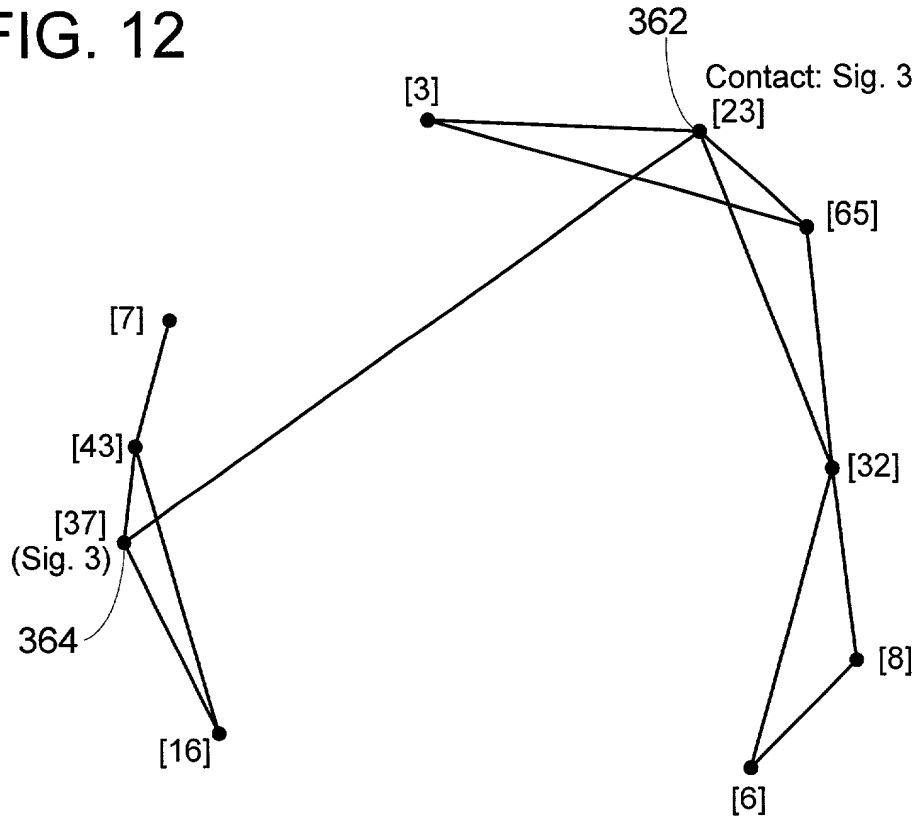

FIG. 13

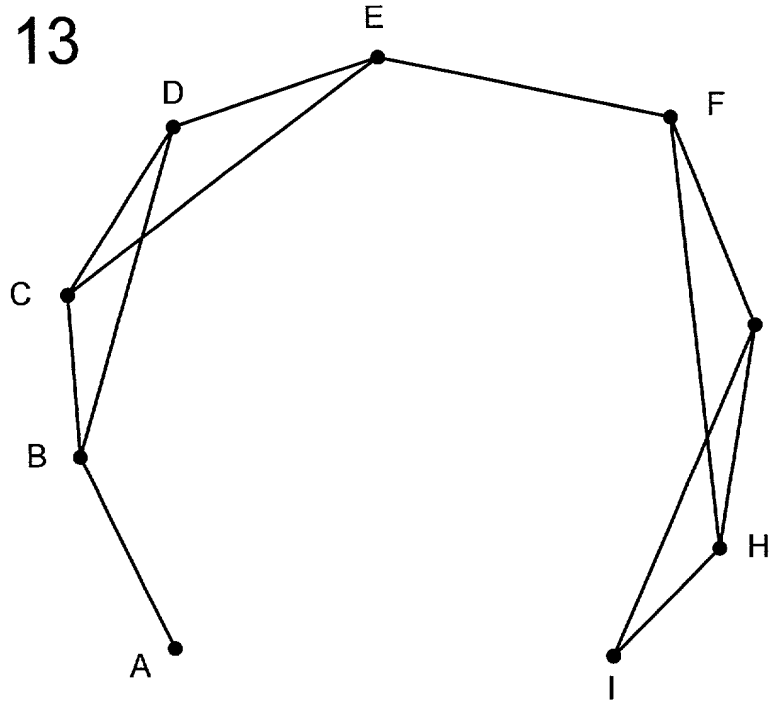

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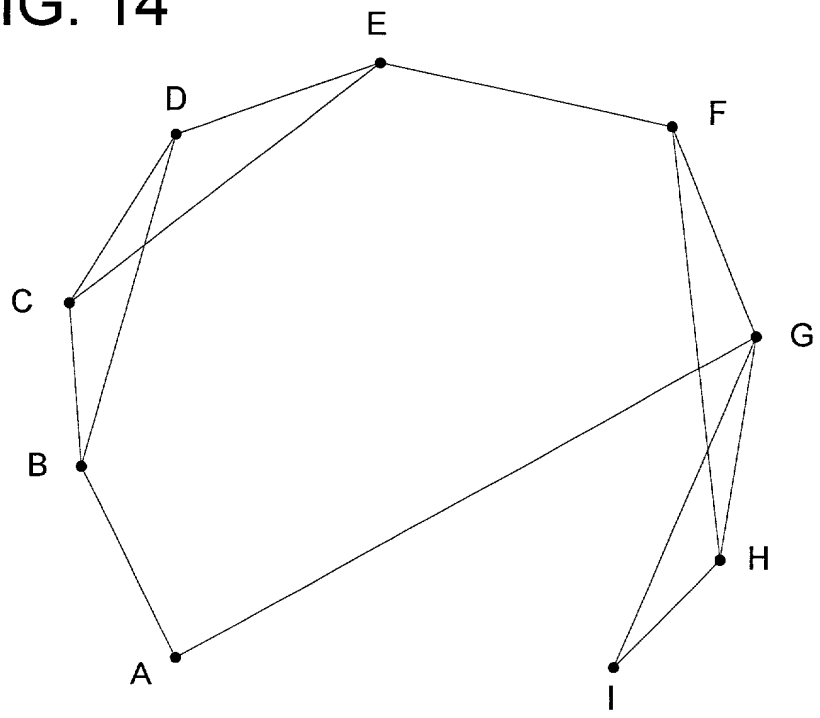
FIG. 14



372

FIG. 15

	0								1								2								3							
	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0
0	Version																Type															
4	Neighbor ID																															
8	Signature																															
12	Total Size																Reserved															
16	Alternative Protocol																Alternative Port															
20	Peer Node Address																															

FIG. 16

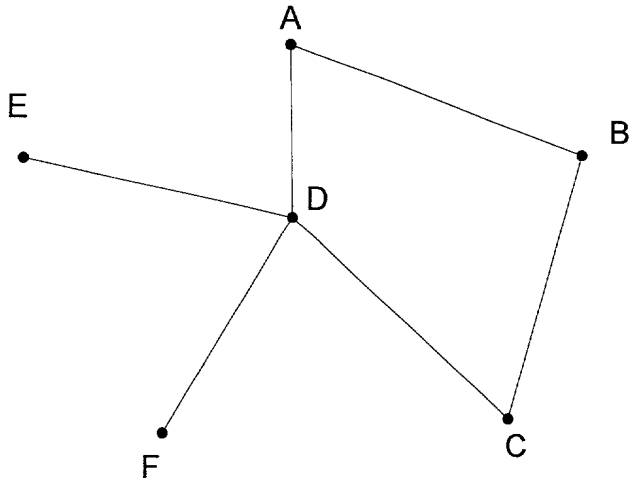


FIG. 17

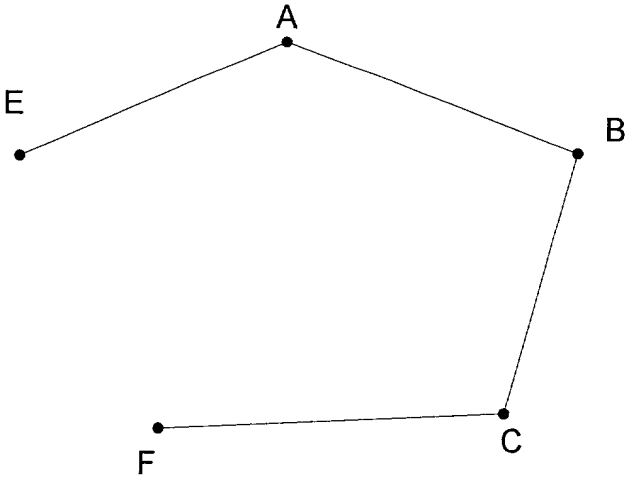


FIG. 18

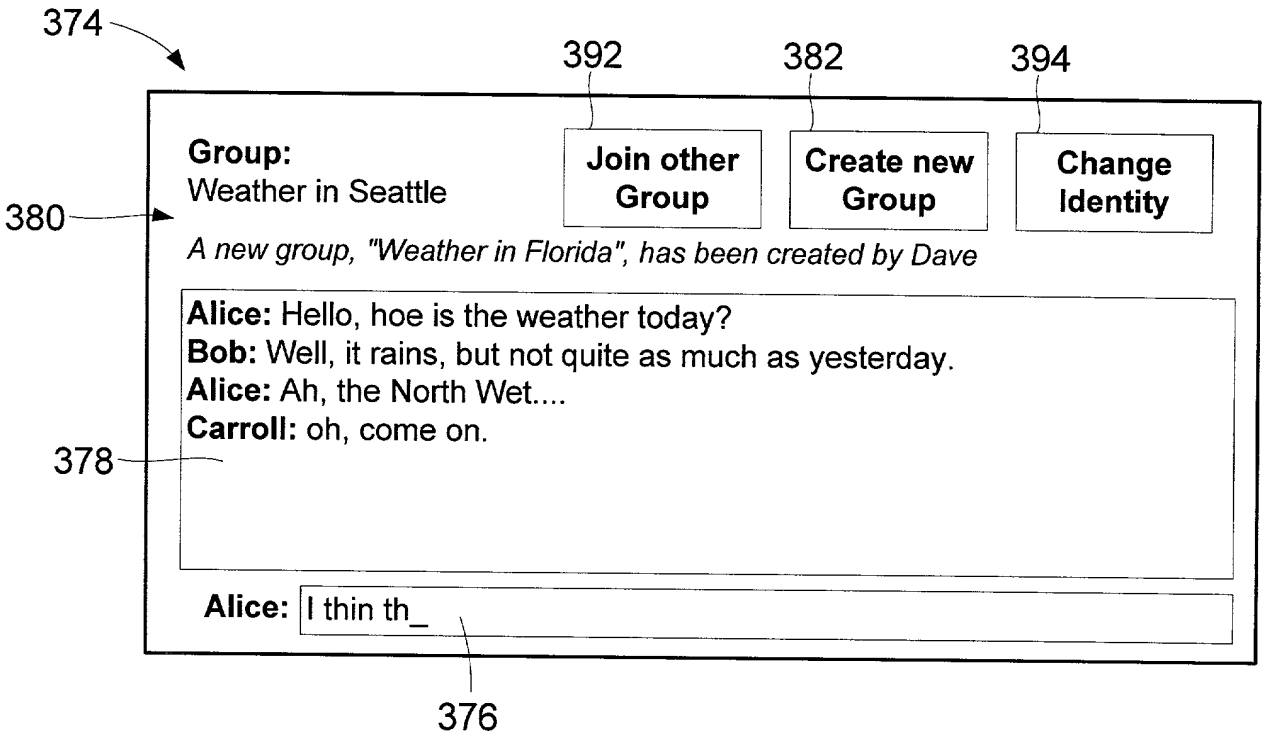

374
392
382
394
Group:
Weather in Seattle
Join other Group
Create new Group
Change Identity
380
A new group, "Weather in Florida", has been created by Dave
Alice: Hello, hoe is the weather today?
Bob: Well, it rains, but not quite as much as yesterday.
Alice: Ah, the North Wet....
Carroll: oh, come on.
378
Alice: I thin th_
376

FIG. 19

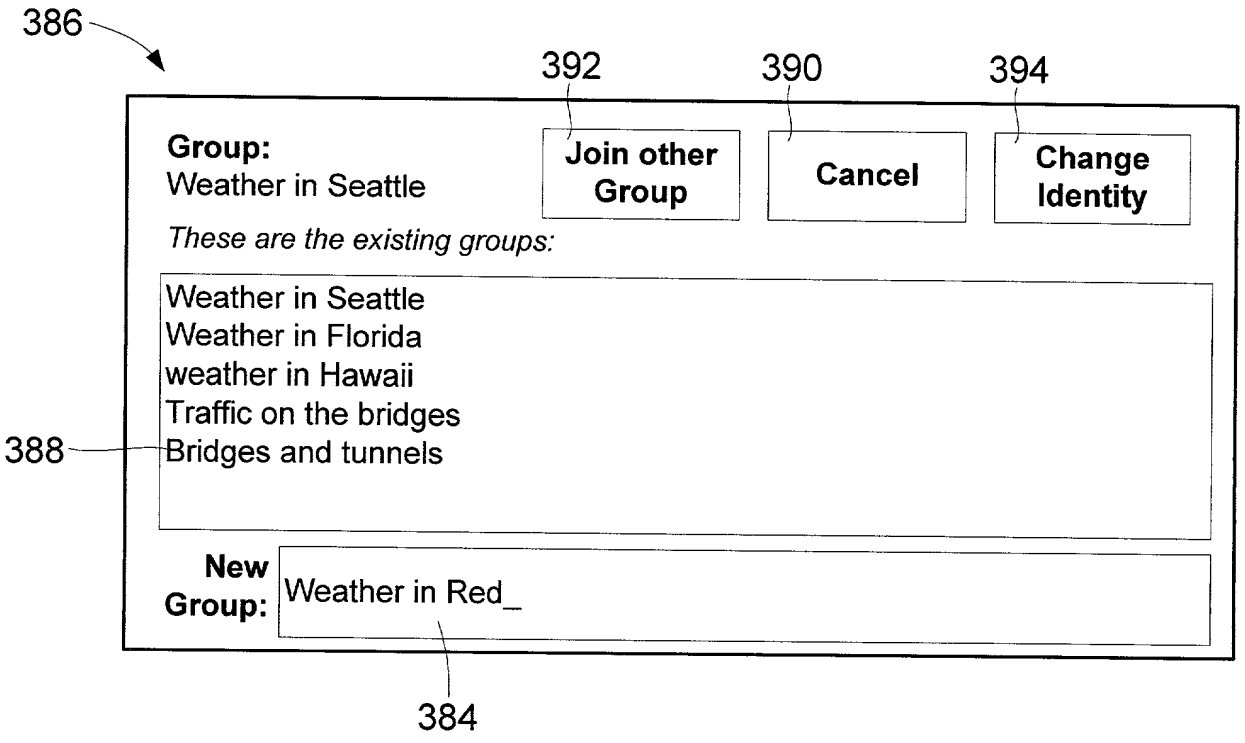

386
392
390
394
Group:
Weather in Seattle
Join other Group
Cancel
Change Identity
These are the existing groups:
Weather in Seattle
Weather in Florida
weather in Hawaii
Traffic on the bridges
388
Bridges and tunnels
New Group:
Weather in Red_
384

FIG. 20

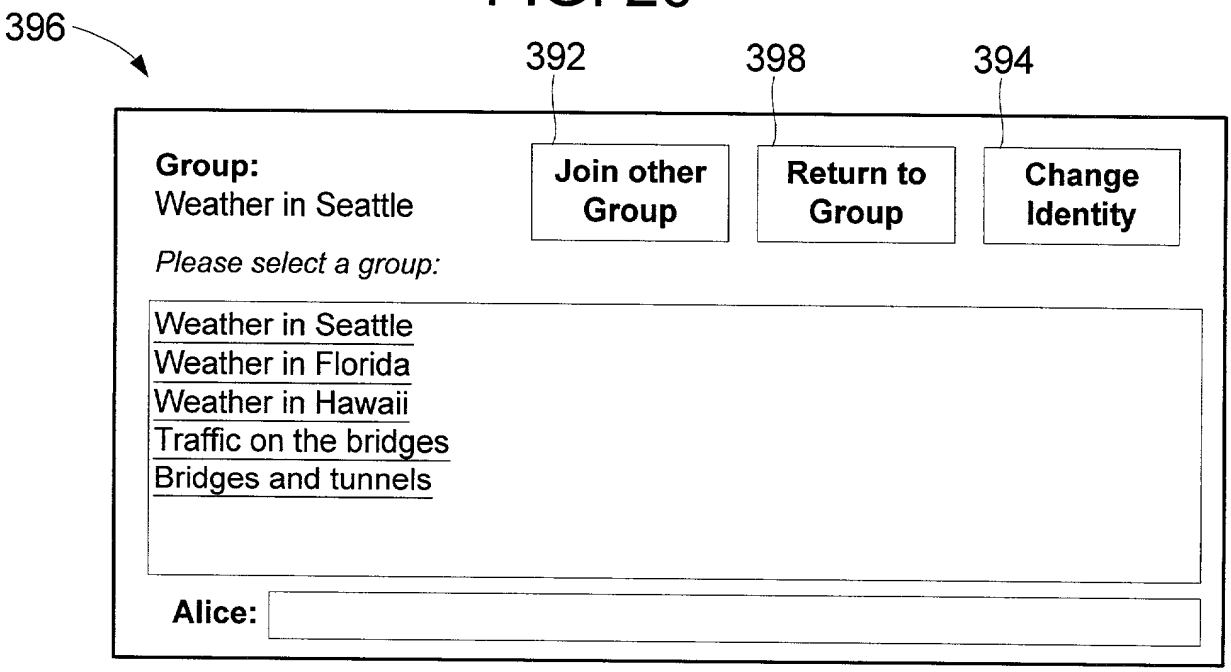
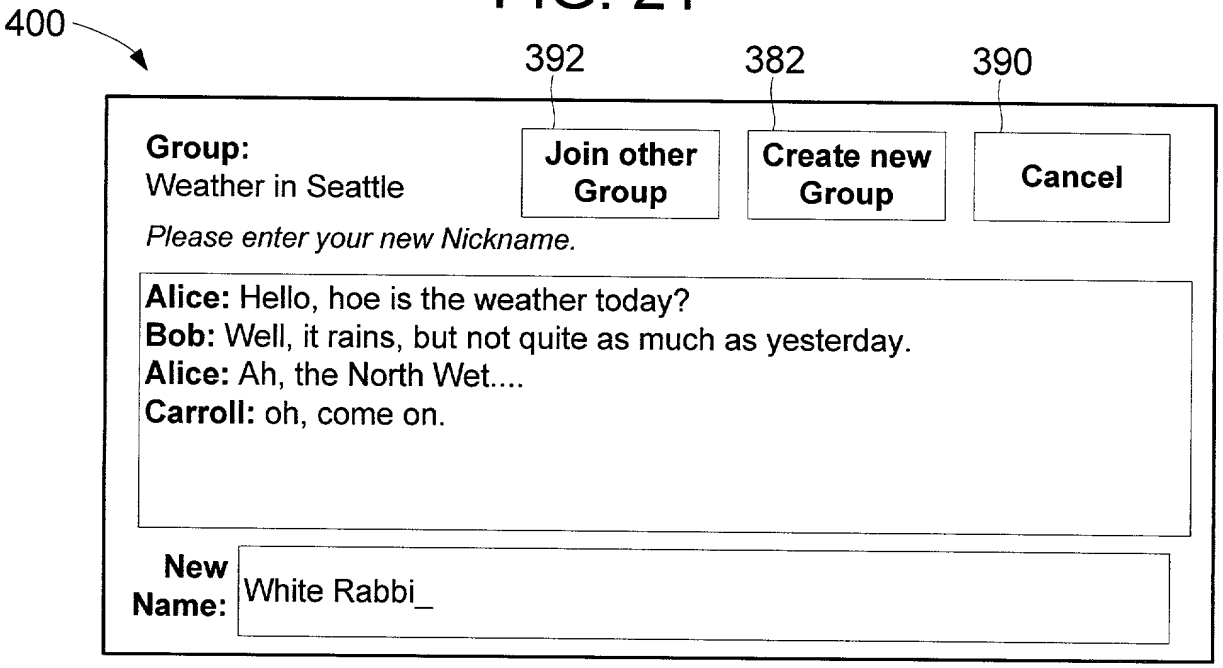

396
392
398
394
Group:
Weather in Seattle
Join other Group
Return to Group
Change Identity
Please select a group:
Weather in Seattle
Weather in Florida
Weather in Hawaii
Traffic on the bridges
Bridges and tunnels
Alice:

FIG. 21


400
392
382
390
Group:
Weather in Seattle
Join other Group
Create new Group
Cancel
Please enter your new Nickname.
Alice: Hello, hoe is the weather today?
Bob: Well, it rains, but not quite as much as yesterday.
Alice: Ah, the North Wet....
Carroll: oh, come on.
New Name:
White Rabbi_